Installing Natural under BS2000/OSD

This document describes step by step how to install Natural under the operating system BS2000/OSD using Adabas system files.

The following topics are covered:

- Prerequisites
- Installation Tape for Natural under BS2000/OSD
- Installation Procedure for Natural under BS2000/OSD
- Installation Verification for Natural under BS2000/OSD

Prerequisites

- BS2000/OSD Operating System must be installed.
  Version as specified under Operating/Teleprocessing Systems Required in the current Natural Release Notes.
- Adabas must be installed.
  Version as specified under Natural and Other Software AG Products in the current Natural Release Notes.
- Approximately 15 MB space in the Adabas database.

Installation Tape for Natural under BS2000/OSD

The installation tape contains the datasets listed in the table below. The sequence of the datasets, the dataset type, the number of library blocks needed and the space each dataset requires on disk are shown in the **Report of Tape Creation** which accompanies the installation tape.

dataset Name	**Contents**
NAT*nnn*.SYSF	Empty Natural system file
NAT*nnn*.ERRN	Natural error messages
NAT*nnn*.PAMS	Natural module library
NAT*nnn*.SRCE	Natural source modules
NAT*nnn*.MACS	Natural macros
NAT*nnn*.JOBS	Example installation jobs
NAT*nnn*.INPL	Natural system objects
NAT*nnn*.EXPL	Natural example objects

The notation *nnn* in dataset names represents the version number of the product.

Copying the Tape Contents to Disk

If you are not using SMA, use the procedure described below. In this procedure, the following values must be supplied:

In the dataset names, replace *nnn* with the current version number of the datasets.

Replace all *xxxxxx* with the volume serial number of the tape.

Perform the following steps to copy the datasets from tape to disk:

1. Copy the job dataset NAT*nnn*.JOBS from tape to disk using the BS2000/OSD utility PERCON or EDT.

- If you use PERCON, issue the following commands:

```
/FILE NATnnn.JOBS,VOL=xxxxxx,DEV=T9G -
/    ,FCBTYPE=,RECSIZE=,BLKSIZE=,RECFORM= -
/    ,STATE=FOREIGN,FSEQ=UNK,LINK=PCIN
/FILE P.NATnnn,LINK=PCOUT
/EXEC PERCON
END
```

- If you use EDT, issue the following commands:

```
/FILE NATnnn.JOBS,VOL=xxxxxx,DEV=T9G -
/     ,RECSIZE=,BLKSIZE=,RECFORM= -
/     ,STATE=FOREIGN,FSEQ=UNK,LINK=EDTSAM
/EXEC EDT
@ READ '/'
@ SY '/REL EDTSAM'
@ WRITE 'P.NATnnn'
@ HALT
```

2. Issue the following command:

```
/CALL P.NATnnn,PRODUCT=NATnnn
```

An example job library "LIB.NAT*nnn*" is created from the procedure dataset.

3. Adapt job "E.TAPE" from the example job library.

Then issue the following command to run the job which copies all datasets from tape to disk:

```
/E LIB.NATnnn(E.TAPE)
```


Installation Procedure for Natural under BS2000/OSD

Step 1: Load the System File

(Job I050, Step 0100)

If you are installing into an existing Natural 3.1 FNAT file, skip this step.

Load the empty Natural system file (dataset NAT*nnn*.SYSF) using the ADALOD utility.

This file will contain all Natural objects supplied by Software AG. Its size depends on the number of products to be installed later. As a rule of thumb, 15 MB can be assumed for each major Software AG product.

The following ADALOD parameters must not be altered:

```
ISNREUSE=YES
VERSION=6
```

To avoid Natural errors NAT9988 and NAT7397 after reorganization of the FNAT system file using ADAULD/ADALOD, the parameter USERISN=YES should be left as set by System Maintenance Aid.

The file number *fnat* of the FNAT system file can be chosen as described under Natural profile parameter FNAT (see Parameter Reference in the Natural Reference documentation).

Step 2: Load the User System File

(Job I050, Step 0101)

You have the following options:

- You can use a new FUSER file for Version 3.1.
- You can use an existing Version 2.3 FUSER file to be shared by Versions 2.3 and 3.1.
- You can use an existing Version 2.2 FUSER file to be used by Version 3.1 only.
- You can use an existing Version 2.2 FUSER file to be shared by Versions 2.2 and 3.1.

Reuse an Existing 3.1 FUSER System File

If you want to use the existing Natural Version 3.1 FUSER system file, skip this step.

Use a New 3.1 FUSER System File - First-Time Installation

If you do **not** want to share the FUSER system file, proceed as follows:

Load the empty Natural user file contained in dataset NATnnn.SYSF using the ADALOD utility.

In this file, all user-written Natural programs are stored.

The following ADALOD parameters **must not** be altered:

```
ISNREUSE=YES
VERSION=6
```

The file number *fuser* of the FUSER system file can be chosen as described under Natural profile parameter FUSER (see Parameter Reference in the Natural Reference documentation).
For the use of a new and empty FUSER system file for Natural Version 3.1, no additional system-file-related actions are necessary.

Reuse an Existing 2.3 FUSER System File - Migration from Natural Version 2.3

If you want to use the existing Natural Version 2.3 FUSER system file and you do not want to share the FUSER system file, skip this step.

Using a Version 2.3 FUSER File to be shared by Natural Versions 2.3 and 3.1

If you use an existing Natural Version 2.3 FUSER system file to be shared by Natural Versions 2.3 and 3.1, you must upgrade your Natural Version 2.3 installation to Version 2.3.3 or 2.3.4.

Caution:
Do not use any Natural Version 2.3.2 or 2.3.1 utilities to manipulate libraries that contain objects of the type "class"! This would cause internal inconsistencies to the effect that Natural 3.1 would then no longer be able to find these objects in the FUSER file.

Using a Version 2.2 FUSER File to be shared by Natural Versions 2.2 and 3.1

If you use an existing Version 2.2 FUSER system file to be shared by Natural Versions 2.2 and 3.1, the version of the shared file must be at least 2.2.8.

Note:
If you already performed the steps described below (in the course of your Natural 2.3 installation) to use an existing FUSER file to be shared by Natural Versions 2.2 and 2.3, that file can be considered a Version 2.3 file. For such a file, see the preceding section Using a Version 2.3 FUSER File to be shared by Natural Versions 2.3 and 3.1.

To use a shared 2.2/3.1 FUSER file, before you install Natural Version 3.1, apply the following update INPL datasets to your Natural Version 2.2:

- NA2875 (if INPL Update NA228A2 not yet applied)
- NT2801 (only if Natural Connection is installed)
- NE2841 (only if Natural Security is installed and INPL Update NE22866 not yet applied)
- NA228B4 (only if Natural Security is installed)
- NQ3404 (only if Natural for DB2 is installed)
- NQ3405 (only if Natural for SQL/DS is installed)

Install Natural Version 3.1 as described in the operating-system-specific installation documents.

After you have installed Natural Version 3.1, replace all USR* modules you have copied from library SYSEXT into application libraries located in the Version 2.2 FUSER with the objects from the Version 3.1 library SYSEXT. The objects in the Version 3.1 library SYSEXT are cataloged with Version 2.2.

After you have discarded your Natural Version 2.2 environments, you should keep only modules belonging to your applications in library SYSTEM in FUSER and delete all Software AG objects from that library. If you are not sure which objects are part of your application and which are part of Natural, refer to the information given in SAGSIS Problem No. 176762.

The reasons for the above steps are as follows:

Under Version 2.2, Natural system programs were loaded with INPL into the library SYSTEM on the FUSER file; these programs are not compatible with Natural Version 3.1. The above update INPL datasets replace these programs with ones that can be executed under Versions 2.2 and 3.1.

With Version 2.2, Software AG objects to be loaded into the library SYSTEM were loaded into both the system files FNAT and FUSER; as of Version 2.3, they are only loaded into the FNAT file (that is, SYSTEM on FUSER no longer contains Software AG objects). Also, as of Version 2.3, the library SYSTEM on the FNAT file is the default steplib for user applications; with Version 2.2, it is not.

Attention:
Do not use any Version 2.2 Natural utilities to manipulate libraries that contain objects of the type "class"! This would cause internal inconsistencies to the effect that Natural 3.1 would then no longer be able to find these objects in the FUSER file.

Using a Version 2.2 FUSER File for Natural Version 3.1 Only - Migration from Natural Version 2.2

If you use an existing Version 2.2 FUSER system file for Natural Version 3.1, the version of the shared file must be at least 2.2.8.

To use a Version 2.2 FUSER file for Natural Version 3.1 only, that is, without using Natural Version 2.2 in parallel on that file, perform the following steps:

1. With the Version 2.2 SYSMAIN utility, move the entire contents of the Version 2.2 library SYSTEM on the FUSER file to a backup library.
2. Install Natural Version 3.1.
3. With the Version 3.1 SYSMAIN utility, copy all of your own application objects - but no Software AG objects that are part of Natural itself! - from the backup library back to the library SYSTEM of the FUSER file.
   If you are not sure which objects are part of your application and which are part of Natural, refer to the information given in SAGSIS Problem No. 176762.

The reasons for the above steps are as follows:

- Under Version 2.2, Natural system programs were loaded with INPL into the library SYSTEM on the FUSER file; these programs are not compatible with Natural Version 3.1. The above update INPL datasets replace these programs with ones that can be executed under Versions 2.2 and 3.1.
- With Version 2.2, Software AG objects to be loaded into the library SYSTEM were loaded into both the system files FNAT and FUSER; as of Version 2.3, they are only loaded into the FNAT file (that is, SYSTEM on FUSER no longer contains Software AG objects). Also, as of Version 2.3, the library SYSTEM on the FNAT file is the default steplib for user applications; with Version 2.2, it is not.

Step 2.1: Load the FDIC System File

(Job I050, Step 0103)

Skip this step

- if you want to install Predict (in this case, use the corresponding installation step in the Predict Installation documentation), or
- if you want to use an existing FDIC system file (an existing FDIC system file can be shared by Natural Versions 2.2 and 3.1, or Versions 2.3 and 3.1), or
- if you do not use your own FDIC system file.

If Predict is used, the sharing of the FDIC system file requires that Predict Version 3.4.2 has been installed.

Load the empty FDIC file contained in dataset NAT*nnn*.SYSF using the ADALOD utility, as described below.

The following ADALOD parameters must not be altered:

```
ISNREUSE=YES
VERSION=6
```

The file number *fdic* of the FDIC system file can be chosen as described under Natural Profile parameter FDIC (in the section Profile Parameters in the Parameter Reference documentation).

Step 2.2: Load the FSEC System File

Skip this step,

- if you do not use Natural Security, or
- if you want to use an existing FSEC system file, or
- if you do not want to use an own FSEC system file.

If you use Natural Security, refer to Installing Natural Security (in the Natural Installation Guide for Mainframes).

An existing Version 2.3.3 or 2.3.4 FSEC system file can be shared by Natural Security Versions 2.3 and 3.1. See Using Multiple Versions of Natural Security (in the Release Notes for Natural Version 3.1 in the RN Archive on the Natural Documentation CD).

Step 3: Assemble the Natural BS2000/OSD Stub Module and Batch Driver

(Job I055, Steps 0216 to 218)

Assemble the following source modules:

- "ABS2STUB" (Natural BS2000/OSD stub module),
- "ANATFRNT" (Natural BS2000/OSD front-end batch driver)
- "ANATRENT" (Natural BS2000/OSD reentrant batch driver).

These source modules are contained in the library *sma-job*.LIB .

Step 4: Create the Parameter Module

(Job I060, Step 0010)

Create the Natural batch parameter module.

The following parameters in the source parameter module "ANATPARM ", which is contained in library *sma-job*.LIB, must be modified for the insta llation:

```
FNAT=(dbid,fnat)
FUSER=(dbid,fuser)
```

For *dbid*, *fnat* and *fuser*, use the values yo u specified when loading the system files (see Steps 1 and 2).

For all other parameters, you can generally use the default values.

Modify only the values of those parameters whose default values do not suit your requirements.

For the individual parameters contained in the parameter module, refer to the Parameter Reference overview in the Natural Reference documentation.

Assemble the parameter module.

Step 5: Link the Natural Nucleus

(Job I060, Steps 3801, 3802)

Link the source modules "LNATFRNT" (front-end part of batch nucleus) and "LNATSHAR" (shared part of batch nucleus).

These source modules are contained in the library *sma-job*.LIB .

With the INCLUDE instruction for the parameter module, specify the nam e of the Natural parameter module created in Step 4.

Using a Sort Program

If you wish to use a sort program (either Natural's internal one or an external one), include the module NAT2SORT.

It is also possible to place NAT2SORT in a load library from where it can be loaded dynamically at runtime; this requires that "NAT2SORT" is specif ied with the profile parameter RCA.

Step 6: Start All Pools

(Job I119, Step 0090)

Start the job "E.START.ALL" which is contained in the librar y *sma-job*.LIB.

To end all pools, start job "E.END.ALL" which is contained i n the library *sma-job*.LIB.

Step 7: Load the System Programs

(Job I061, Step 0100)

Use the Natural system command INPL to load the Natural system objects (the dataset NAT*nnn*.INPL) into the Natural system files.

Step 8: Load the Error Messages

(Job I061, Step 0102)

Load the Natural error messages file (dataset NAT*nnn*.ERRN) using the program ERRLODUS (described in the Natural SYSERR Utility documentation).

Step 9: Load the Examples

(Job I061, Step 0103)

Use the system command INPL to load the Natural example objects (dataset NAT*nnn*.EXPL) into the Natural system file.

Step 10: Load Possible INPL Updates

This step is only required if there are any INPL updates for Natural V ersion 2.3 on the installation tape. Please refer to the **Report of Tape Creation.**

Use the Natural system command INPL to load any Natural INPL updates.

Installation Verification for Natural under BS2000/OSD

For base Natural, there are no specific installation verification procedures. After the last step of the installation procedure has been successfully performed, check that the following results are available:

- Communication between Adabas and Natural is working.
- The Natural system files have been loaded.
- Batch Natural is operational.

